REMARKS

Claims 13-30 stand pending. Applicant amends claims 13, 17 and 19 herein, and claims 13-30 remain pending for examination. Applicants respectfully request entry of these claims amendments, and allowance of the pending claims of the present application in view of the foregoing amendments and the argument and discussion below.

Applicant appreciates the through search conducted by the Examiner, and acknowledges the finality of the 05/16/2006 Office Action. However, it appears that the Patent Office in this Action misapprehends certain aspects of the cited references and of present invention as claimed. Accordingly, Applicant maintains that a prima facie case of obviousness has not been met, and that the finality of the 05/16/2006 Office Action should be withdrawn for this reason. Toward allowance of the pending claims, this Response focuses on arguments and explanation to foster a better understanding of the differences between the cited references and the invention as claimed. The amendment to claim 13 is provided particularly to further clarify an apparent misapprehension of an aspect of this claim.

Objections to the Specification

The Patent Office has objected to the specification as failing to provide proper antecedent basis for the claimed subject matter of claims 17 and 19, with regard to an aspect of making a combined image using imaging positions that do not overlap.

To address this objection, Applicant has amended claims 17 and 19. Support for these amendments are found in the specification, from page 6, line 16, through page 7, line 2, and particularly page 6, lines 16-19 for the amendment of claim 17, and page 6, line 27 to page 7, line 2 for the amendment of claim 19.

Applicant respectfully requests entry of these amendments as these are believed to overcome this objection and to advance these claims to issuance. In accordance with the discussion in the section below, these approaches are not disclosed in any of the cited references. Applicant also requests reconsideration and withdrawal of these objections, and allowance of these claims.

Claim Rejections under 35 USC 103(a)

Claims 13-15, and 20-29 stand rejected under 35 USC 103(a) as being allegedly unpatentable over Smith (US 6,282,264) in view of Sakaguchi (US 6,222,906).

Applicant respectfully asserts that a prima facie case of obviousness has not been met, and that, accordingly, the claim rejections of the 05/16/2006 Office Action should be withdrawn, and a new Office Action provided.

The Office Action recites limitations of claim 13, and directs the reader to portions of the Smith patent that are alleged to read on the respective limitations. Claim 13 is directed to generating a combined image showing an examination area, wherein the examination area has a height exceeding a height of an active surface area of a digital radiation detector (the combined image derived from a plurality of successive images based on vertical movement relative to a patient in a standing position). However, the Office Action derives support for "an image processing device for generating a combined image *showing the examination area*" (from top of page 3 of Office Action, with italicized words added from the claim) from the following statement from the Smith patent, "An alternative method of performing tomosynthesis can be used where the source and detector motions relative to the patient occur as described above, but only one image is generated from the entire motion sequence, representing a composite image acquired over all the positions." (Col. 11, lines 2-6, underline emphasis added)

A tomosynthesis composite image is a three-dimensional image obtained by combining a number of planar images taken about an axis. See the attached Exhibit A providing references obtained from a brief internet search regarding this term and a more generic term, geometric tomography. In view of the generally accepted meaning of tomosynthesis, there is no teaching in the Smith patent of "an image processing device for generating a combined image *showing the examination area*," where it is established in the claim that the examination area has a height exceeding the height of the active surface area of the digital radiation detector, which is configured to be moved vertically relative to a patient in a standing position.

Based on this alone, it appears that the Office Action analysis and analogizing with regard to the primary reference, Smith, in regard to claim 13, fails.

Further, the Office Action acknowledges that Smith "does not expressly teach that the plurality of successive imaging positions are calculated by the control device" and goes on to

state "based additionally on user input data providing the height of the active surface area of the digital radiation detector." (bottom of page 3) Based on the latter part of this statement it appears that the Patent Office misapprehends the meaning of a part of claim 13 and consequently the nature and scope of claim 13 and its dependent claims. On page 4 of the specification, lines 1-22, and particularly lines 14-18, it is clear that the height of the active surface area of the digital radiation detector may or may not be variable, and consequently in various embodiments this parameter may but need not be set by the user. It is generally recognized that the use of language to describe an invention is imprecise, and it is believed that errors may inadvertently result based on grammar and juxtaposition that may be interpreted in more than one way. Here the Patent Office has read an "and" in the claim to join as an object of "providing" a term that was not meant to be joined, and that should not be joined in order to give the claim its broadest reasonable meaning. Consequently, Applicant herein clarifies this by amending a portion of claim 13 as follows, ". . . the plurality of successive imaging positions are calculated by the control device based on user input data providing the height of the examination area and based on the height of the active surface area of the digital radiation detector, ...". It is believed that this clarifies this inadvertent ambiguity. Entry is respectfully requested; this will allow for proper examination.

Based on the above, Applicant respectfully asserts that the secondary Sakaguchi patent (US 6,222,906) does not meet the limitation for which it was presented. The referenced Sakaguchi patent sections teach that a smaller reading region may be selected for specific imaging purposes, "Assuming that each of the X-ray flat panel detectors 305, 308 has a totally 9-inch field of vision, a reading region selecting key for specifying the size of a reading region such as 4-inch, 6-inch or the like is provided as the reading region setting key 316." (Column 27, lines 40-45) The Sakaguchi patent is silent as to obtaining adjacent, overlapping images to generate a combined image.

In the alternative to the above arguments, Applicant believes that even assuming arguendo that the limitations are met in general description of the Smith patent, the image processing device and/or the control device of claim 13 are not enabled in the Smith patent, nor does the Smith patent provide a proper written description of what is claimed in claim 13 of the present invention. Applicant appreciates that the issue of whether a reference used in an

obviousness rejection need be enabling is not a settled question. However, in the present case there is little doubt that the Smith patent does neither clearly describes nor shows how to operate a medical imaging device according to claim 13 of the present application, particularly in view of the correct understanding of the term "tomosynthesis" and what claim 13 is teaching, and Sakaguchi does not sufficiently add to the teachings to arguably provide an enabling disclosure.

Although in response to a rejection and primarily to clarify an aspect of the claim, Applicant believes that the amendments to claim 13 do not narrow the claim for purposes of patentability. Also, no new matter is added herein.

The Office action presents additional reasoning and/or references in combination with Smith and Sakaguchi for the rejection of claims 14-30. It is believed that all of these rejections of claims 14-30, all of which depend from claim 13 and involve Smith and Sakaguchi, are overcome based on the above argument and amendment of independent claim 13. Accordingly, reconsideration and withdrawal of the rejections of claims 14-30 are respectfully requested based on the argument above related to independent claim 13, from which these claims depend.

Specifically as to claims 16-19 and the use of the additional Lobregt patent, US 6,097,833, it is asserted that neither the prior art patent, US 5,123,056, referenced in column 1, nor Lobregt itself teaches the limitations of these claims. As stated in column 1 below the noted lines 24-53, the teaching of US 5,123,056 requires that its image composition method involves overlapping portions of consecutive sub-images which is "calculated from positions of a carrier to which the x-ray source and the x-ray detector are mounted, . . . Thus, the known image assembly method can be employed only if data on the positions of the x-ray source, x-ray detector and patient table are recorded together with the x-ray sub-images." As to the teaching of Lobregt US 6,097,833 itself, this in one aspect involves "a comparison of pixel-values of pixels in overlapping portions of respective consecutive sub-images which correspond to the same position in the elongate scene" (column 3, lines 50-54), and in another aspect involving a method employing a field selector "for selecting fields in the form of respective overlapping lengthened portions of each of the sub-images . . . " (see all of column 6, lines 21-36). As is understood from FIGs. 4 and 5 of Lobregt and discussions of these figures, the method here involves a comparison of a template vector from one sub-image and a gauge vector from an adjacent sub-image, and a shifting and averaging (by weight factors) to achieve a blending of

rows of pixel-values (see columns 4 and 5). The rows are perpendicular to the longitudinal axis of the overall image and key structures in such image, for instance a long bone. As is clear from these examples, the approach calls for substantial overlap regions. This approach is believed to particularly teach away from the approach of claims 17 and 19, which employ, respectively, a narrow overlap and a narrow overlap wherein a combined image is generated based on algorithms that utilize edges of continuing structures (e.g., analyzing structures extending through the images, and not just in the overlap region). It is generally recognized that some persons have a desire to minimize exposure to x-rays, based on concerns about cellular damage from x-rays, and the present device that allows for less overlap may be preferred by such persons, as compared to approaches of the cited references that rely on the overlap areas and that may extend these to develop better fits between adjacent images to be combined.

Conclusion

For reasons stated above, the withdrawal of the finality of the 05/16/2006 Office Action is respectfully requested.

Also, for the foregoing reasons it is respectfully submitted that the rejections set forth in the outstanding Office Action have been overcome and that the application is now in condition for allowance. Please grant any extensions of time required to enter this paper. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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